

Improving Information Management Systems at Virginia Department of Transportation

“Big Payoffs in Baby Steps”

Murali Rao

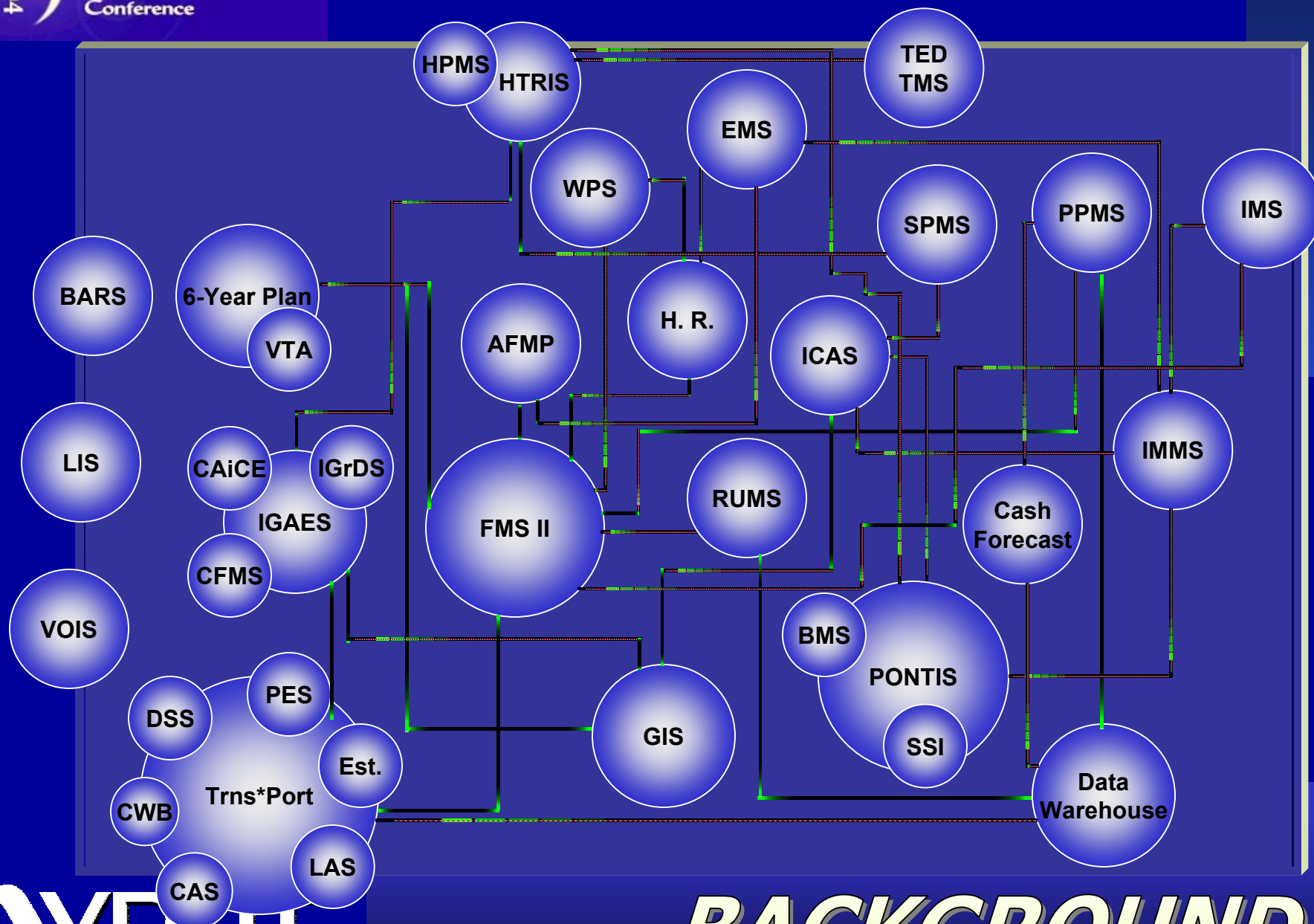
Information Technology Director

Incremental Delivery

A Business and Technology partnership

1. Empowered employees at all levels
2. Made technology relevant and easily accessible
3. Removed bottlenecks and hurdles
4. Deployed integrated systems along functional lines:
 - Administration
 - Engineering
 - Operations
5. Focused on the good, rather than the perfect system

Situation before Y2K



What happened after Y2K

2000-2001: Significant push for ERP

2002: Reviewed ERP concept and developed preliminary scope

- Assessment:**
- Large expense
 - Required multi-year effort
 - Payoff not assured



What did we do?

We took incremental steps:

- Reviewed our legacy systems
- Developed a web architecture
- Developed web interfaces
- Wrapped legacy systems together with web 'front-end'
- Focused on improving data quality



How did we do it?

“Wrapper” concept illustrated:



Web ‘front-end’ for
business decision making

Web architecture “Wrapper”

Existing legacy systems/databases

Result: Incremental delivery of ERP functionality

Short timeframe - Low cost - Internal resources

What did it involve?



Using legacy system data, such as:

Trns.Port PPMS RUMS



Cleaning and loading legacy system
data into the Data Warehouse

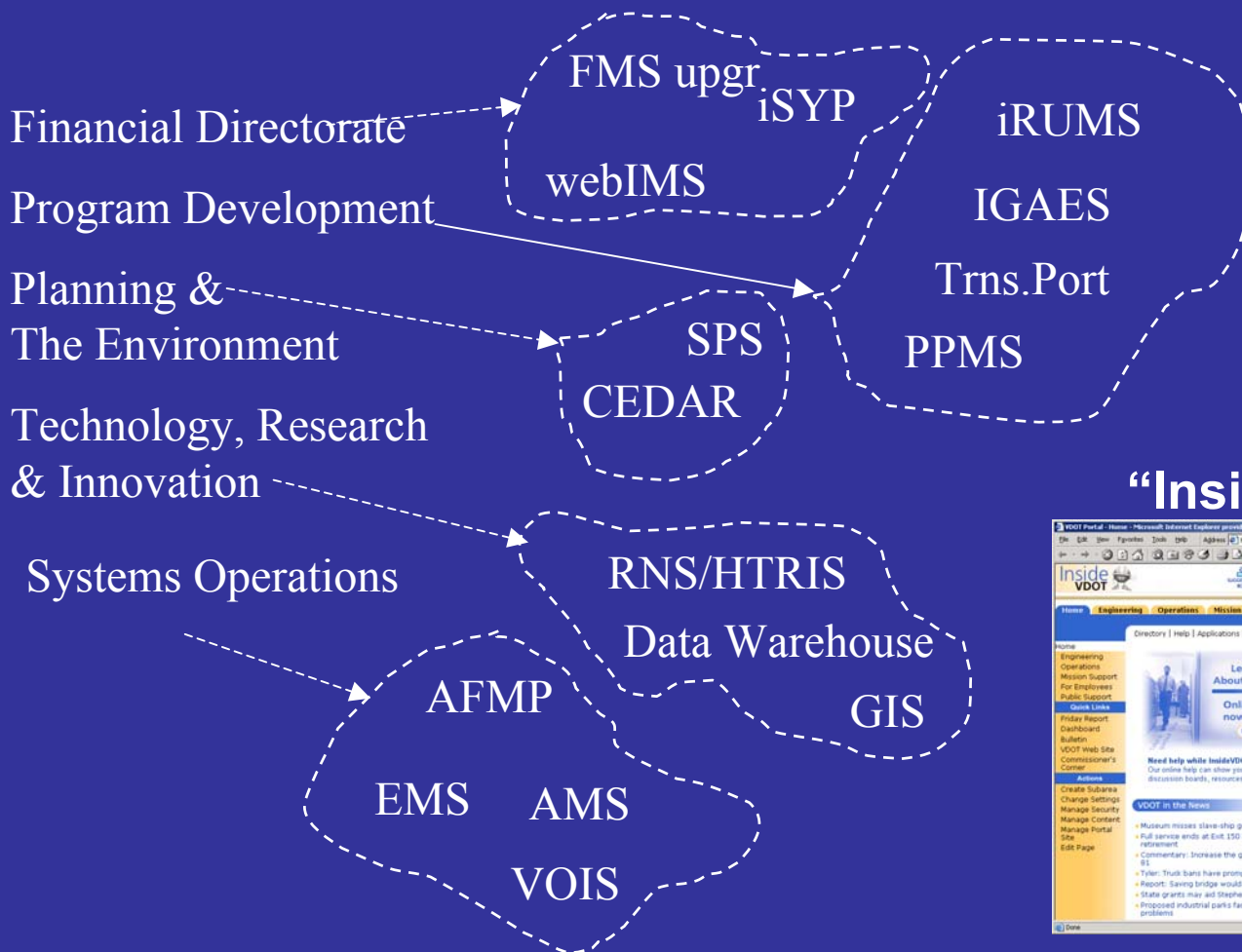


Developing web-enabled systems:

Dashboard PCES iSYP

How does it work?

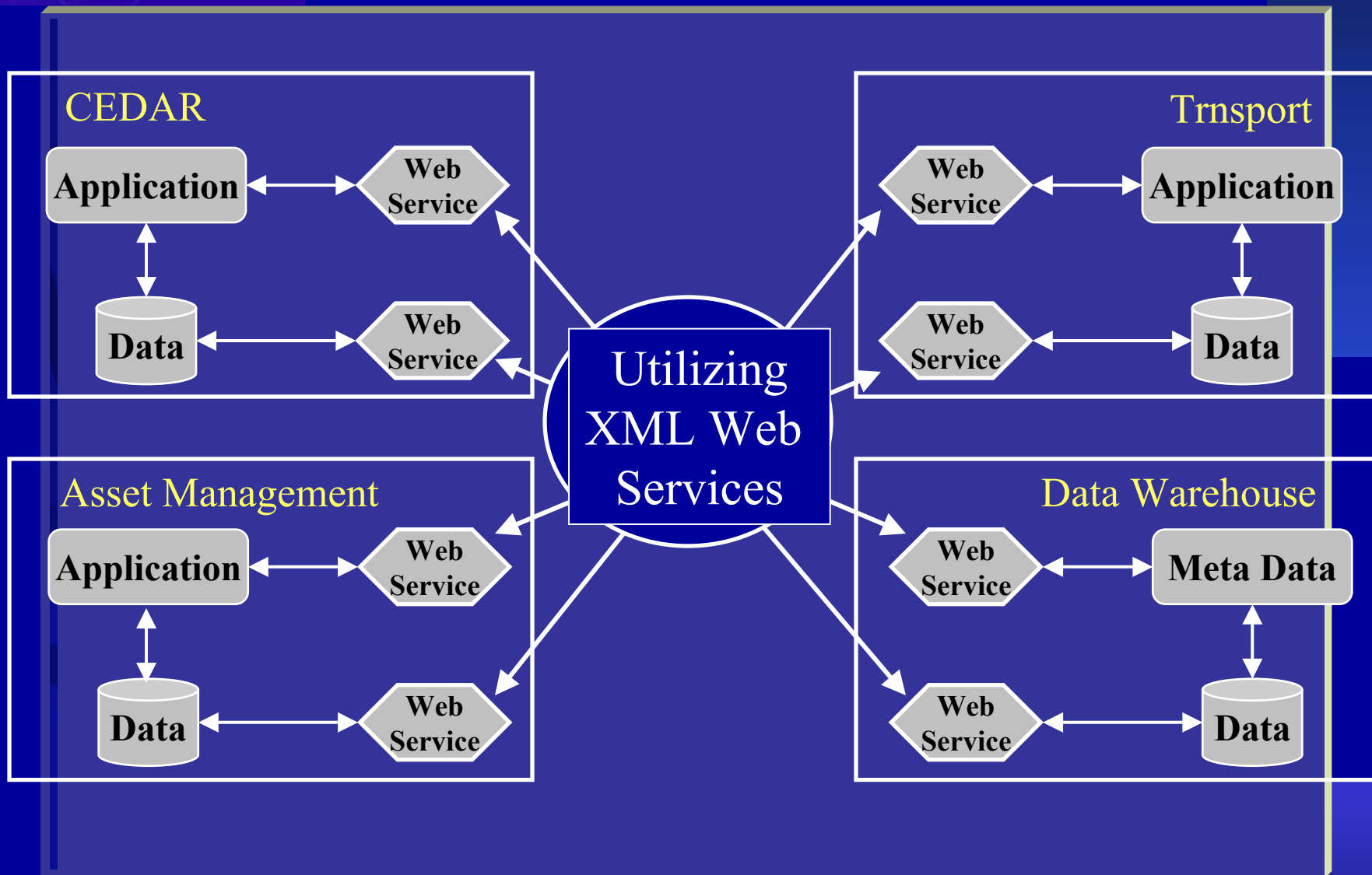
Integrated Systems Vision



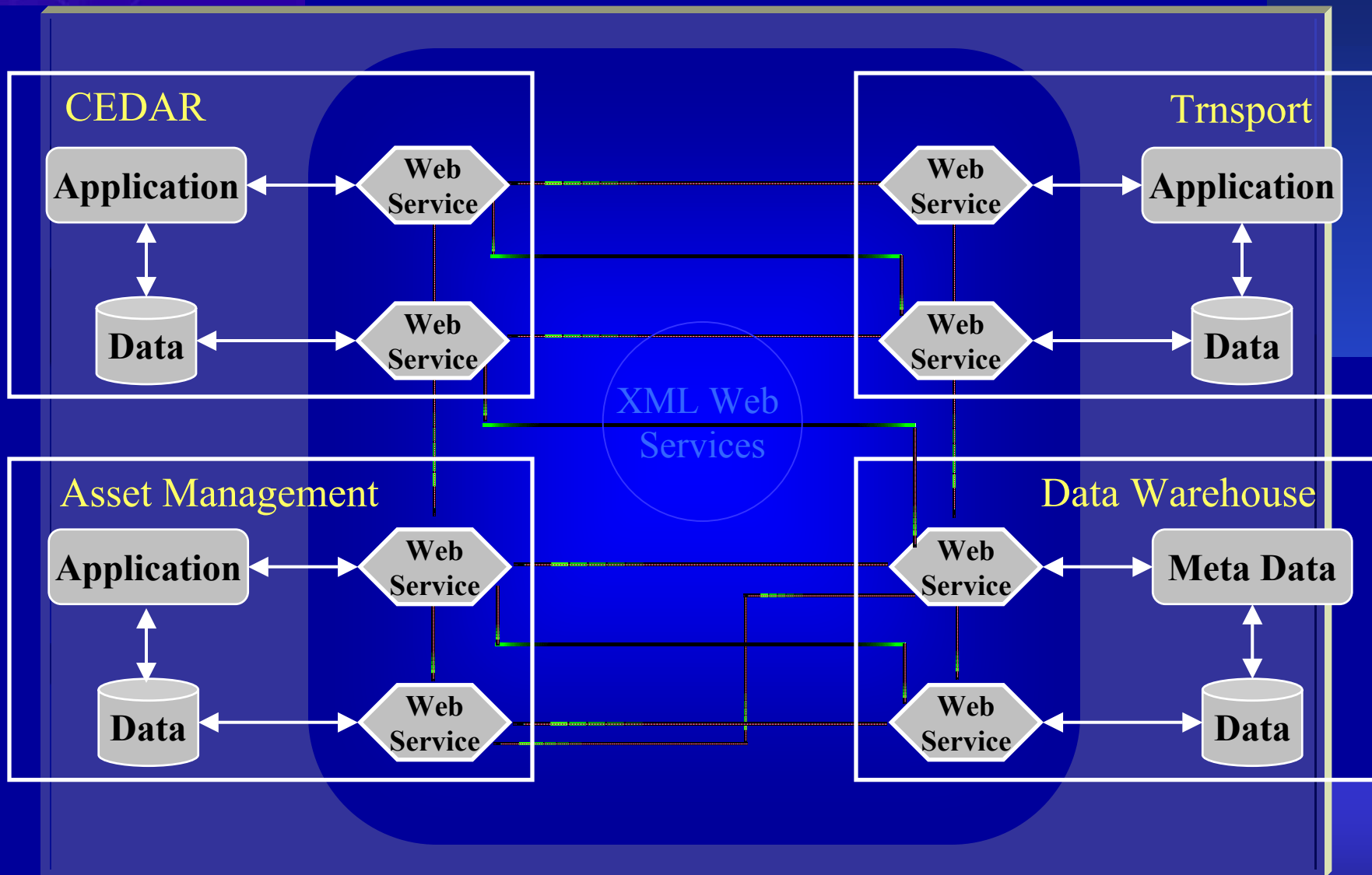
“InsideVDOT”



Web Architecture



How does it work?



Systems Architecture

Hardware

- Midrange servers
- Standardized desktops

Application Tools

- Web enablers
- Code generators
- Mature stable tools for rapid deployment

Databases

- SQL servers
- Oracle
- Access
- Gateways to older technologies

Volume of our Program

| | Applications in | |
|------------------|---------------------------|---------------------------|
| | <u>Maintenance</u> | <u>Development</u> |
| Major | 10 | 11 |
| Non-Major | 25 | 32 |
| TOTAL | 35 | 43 |

This does not include small-scope systems

Systems under development

Financial Directorate

Major Projects:

EZ PASS Reciprocity

Electronic toll collection for out-of-state customers

FMS II Upgrade

Upgrade to current versions of products

webIMS

Migrating Inventory Management System to a web-based application with an Oracle database

Small-Scope Projects: 4



Systems under development

Systems Operations Directorate

Major Projects:

Asset Management System

Decision-support system that identifies needs for maintaining assets

Hampton Roads Smart Traffic Center

Systems Integration component of the construction project.

Pinners Point

Smart Traffic (ITS) component of the midtown tunnel construction project.

I-81 Systems Integrator

Turnkey project for the I-81 corridor ITS implementation

Non-Major Projects:

VOIS Enhancements, EMS Mngd Comp
Crash Reporting System

Systems under development

Technology Directorate

Major Projects:

Roadway Network System

Decision-support system that identifies geographic positioning of Virginia's roadway network. Replaces HTRIS.

Non-Major Projects:

Land Use Permits,
Next Generation Dashboard
InsideVDOT portal

Small-Scope Projects: 5



Systems under development

Planning & The Environment Directorate

Major Projects:

CEDAR

Consolidates multiple applications to track and report on transportation environmental regulations, schedules, etc.

Small-Scope Projects: 7



Systems under development

Program Development Directorate

Major Projects:

Client/Server Trnsport

Replacement for mainframe system

Geopak

Replaces the 2 Civil Engineering Design Modules of the IGAES

Non-Major Projects:

PPMS upgrade, SiteManager
Eminent Domain Appraisals,
AASHTO Bridgeware,

Small-Scope Projects: 1

Systems under development

Organizational Development Directorate

Small-Scope Projects:

1. Knowledge Management System
2. Human Resources Recruitment System
3. Civil Rights Tracking System

Communications Directorate

Small-Scope Projects:

1. Adopt-A-Highway
2. Photography Work Order Tracking System

What were the benefits?

Project Management:

- Project Management Guidelines being updated
- IT policies & procedures being reviewed & updated
- Certified project managers placed on all Information Technology Major & Non-Major projects

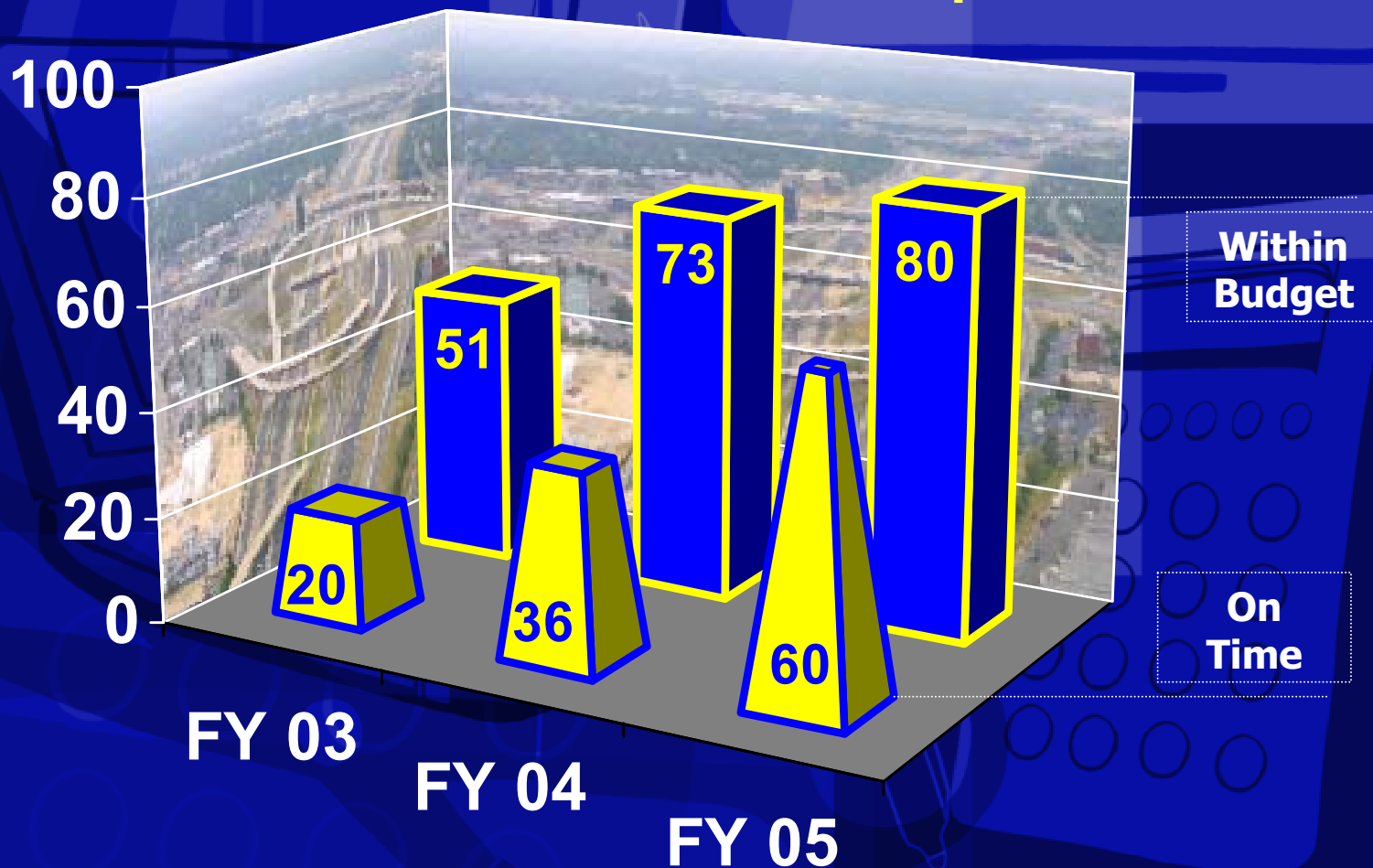
Data Quality:

- Example:
PPMS data prior to Dashboard: 15%
In 60 days it improved to 85%.



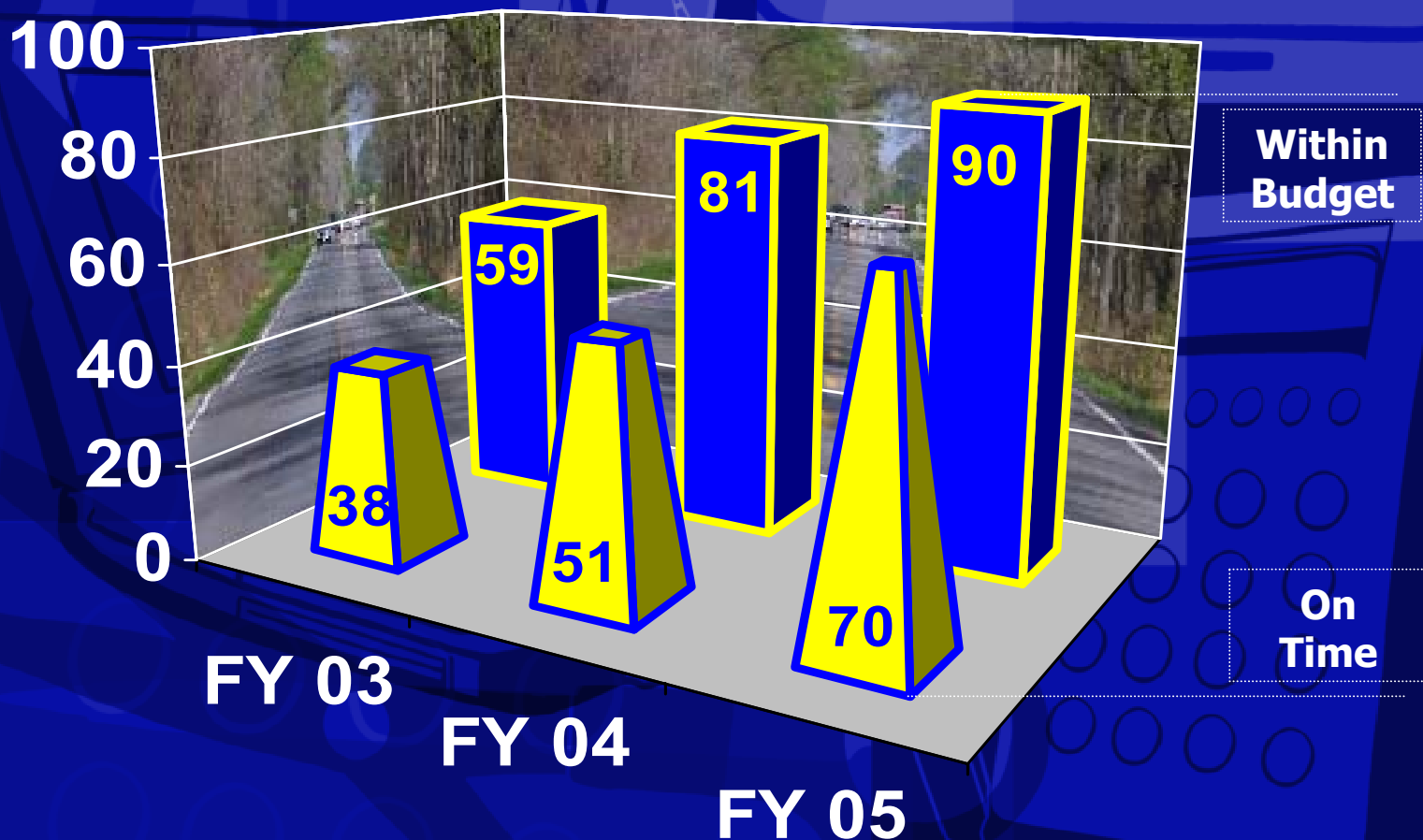
Business Value Realized

Construction Contracts Completed



Business Value Realized

Maintenance Contracts Completed



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